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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/624,260	07/22/2003	Foot Shen Wong	02-0146	7340
41066 7590 01/26/2007 WAGNER, MURABITO & HAO, LLP TWO NORTH MARKET STREET, THIRD FLOOR SAN JOSE, CA 95113			EXAMINER PARRIES, DRUM	
			ART UNIT	PAPER NUMBER
			2836	
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		01/26/2007	PAPER	

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

**Office Action Summary**

Application No.

10/624,260

Applicant(s)

WONG ET AL.

Examiner

Dru M. Parries

Art Unit

2836

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 30 October 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Response to Arguments*

1. Applicant's arguments filed October 30, 2006 have been fully considered but they are not persuasive. Regarding claims 1, 4, 7, and 11, Carobolante teaches one current source ( $V_M$ ), at least one current source switch (2 or 6), and the current source being coupled to a load (L) to deliver current to said load during low current conditions via a linear mode, and during high current conditions via PWM (Fig. 1; Col. 2, lines 17-22; Col. 3, lines 40-46).

Regarding the combination of Carobolante and Alfrey, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, they are both in the same field of applicant's endeavor, which is controlling the supply of current to a load.

2. Applicant's arguments, see page 7, filed October 30, 2006, with respect to claim 15 have been fully considered and are persuasive. The objection of claim 15 has been withdrawn.

### *Claim Rejections - 35 USC § 103*

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-8 and 10-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Carobolante (6,084,378) and Alfrey (2003/0103364). Carobolante teaches a current source ( $V_M$ )

Art Unit: 2836

and four power switches forming an H-bridge circuit selectively coupled to supply current to a load. He also teaches a plurality of power switch driving circuits (not shown) to control the conduction state of the power switches to selectively couple at least two power switches to a PWM signal. Carobolante teaches two modes of operation: a linear mode for periods of low current consumption and a PWM mode for periods of higher current consumption. He also teaches the idea of adding additional circuitry to drive the load with linear current. (Col. 1, lines 30-31; Col. 2, lines 17-23, 29-31; Col. 3, lines 40-46; Col. 14, lines 18-20, 22-29; Fig. 1).

Carobolante fails to teach a system having two current sources, the load being a thermal electrical cooler, and what the direction of current through the load defines. Alfrey teaches a linear H-Bridge circuit with for supplying current to a load, such as a thermoelectric cooler. He also teaches the direction of current through the load to define a cooling or heating mode. He also teaches the circuit comprising two current sources (Fig. 7, 7A; 17 & 19) with current source switches (601), wherein one source is coupled to the load during a first period and the other is coupled during a second period via current source switches ([0005] & [0044]). It would have been obvious to one of ordinary skill in the art at the time of the invention to implement a thermoelectric cooler as the load and define the direction of current as either a cooling or heating mode because some applications of an H-Bridge circuit are used specifically for thermoelectric coolers and the heating and cooling modes are necessary for the cooler to function properly (inherent). It also would have been obvious to one of ordinary skill in the art at the time of the invention to implement two current sources in the circuit to control the magnitude of the current being supplied to the load.

5. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Carobolante (6,084,378) and Alfrey (2003/0103364) as applied to claim 7 above, and further in view of

Art Unit: 2836

Walter (2003/0155813). Carobolante and Alfrey teach an H-Bridge circuit as described above.

The two references fail to teach a filter circuit coupled between some switches and the load.

Walter teaches a filter circuit (34, 36) coupled between two of four switches and the load (Fig. 1;

[0034]). It would have been obvious to one of ordinary skill in the art at the time of the

invention to incorporate a filter circuit for attenuating harmonic distortion in the output voltage.


### *Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dru M. Parries whose telephone number is (571) 272-8542. The examiner can normally be reached on Monday -Thursday from 9:00am to 6:00pm. The examiner can also be reached on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Sircus, can be reached on 571-272-2800 x 36. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DMP

1-8-2007

  
CHAU N. NGUYEN  
PRIMARY EXAMINER